Application for Permit
To Inject E&P Waste
Into Salt Cavern
OCS-G 9372 Well # CA-05-A Brine Well
NTL No. 99-G22

NTL No. 99-G22 (Effective Date: September 24, 1999) sets forth the "Guidelines for the Sub-Seabed Disposal and Offshore Storage of Solid Wastes". These Guidelines have been incorporated herein and their requirements have been addressed. This application applies to the salt cavern associated with Brine Well # BR-05-A (it is anticipated that the well name will be changed to the CA-05-A Well).

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Main Pass Block 299, OCS-G 9372
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Section **Page**

SECTION A- INTRODUCTION

In this application, Freeport-McMoRan Sulphur LLC (Freeport) requests approval to inject RCRA exempt non-hazardous oilfield waste (E&P waste) into the existing salt cavern underlying OCS-G Well # 5-A (OCS-G 9372 Well #BR-05-A) at Sulphur and Salt Lease OCS-G 9372, Main Pass Block 299. This application is for injection of E&P Waste into the existing cavern access well, the OCS-G 9372 Well #BR-05-A, which will be re-designated the OCS-G 9372 Well #CA-05-A in a Sundry Notice to be submitted later. This application is submitted along with other applications for injection of E&P waste into caprock (the rock formation overlying the salt dome, consisting of anhydrite, limestone and sulphur ore) and injection into the salt cavern underlying an existing cavern access well, the Brine Well # 1-A (OCS-G 9372 Well #BR-01-A, which will be re-designated the OCS-G 9372 Well #CA-01-A in a Sundry Notice to be submitted later), and the into the salt cavern underlying the former Brine Well # 3-A (OCS-G 9372 Well #BR-03-A, which has been plugged and abandoned and will be re-entered in a well to be proposed to be named the OCS-G 9372 Well #CA-03-A [Application for Permit to Drill forthcoming]).

This application, and the others referred to above, constitute the second part of a two-part permit application for a project to combine the production of salt (in the form of brine, produced in accordance with the terms of Sulphur and Salt Lease OCS-G 9372) and the use of the caverns created by salt production as well as the caprock overlying the salt dome for disposal of RCRA exempt non-hazardous oilfield waste (E&P waste). The operations associated with commercial salt production were described in the Supplemental DOCD submitted November 30, 2000, which was approved March 26, 2001. Approval of the methodology proposed for measurement of the salt produced was previously received, and commercial salt production has commenced.

Approval of Freeport's applications for E&P waste disposal will enable the implementation of the following system: E&P waste will be received at Main Pass 299, directly injected, or stored, processed to extract recyclable materials or to enhance injection capability, and injected. At times some E&P waste will be processed at existing onshore facilities (Fourchon, Venice and Morgan City, Louisiana, impacts of which are addressed in the Environmental Report) to remove hydrocarbons and/or other recyclable materials (primarily hydrocarbons and synthetic drilling fluids), then taken to Main Pass 299 for injection. When waste is used as a substitute for the seawater currently being used in association with Freeport's oil and gas production on Main Pass Block 299, it will be considered a beneficial re-use of that waste. This application is for disposal of OCS-generated E&P waste only. Commingling of OCS-generated E&P waste with E&P waste generated either in State territorial waters or onshore will be prevented by handling these wastes in separate dedicated barges.

Geological Description

In the Supplemental DOCD referenced above, Freeport repeated the section titled "Current interpretations of relevant G&G data" from the Initial DOCD. Below, for ease of reference, the section is quoted again:

> Geologic knowledge of the Main Pass sulphur deposit is based primarily on the results of a drilling program conducted by a Joint Venture sulphur exploration program, with Freeport-McMoRan Resource Partners serving as operator. Drilling at Main Pass began on December 1, 1988 and finished on March 20, 1989; the program included drilling 20 holes using typical contracted jack-up type offshore rigs. The total amount of subsea drilling was 37,515 feet.
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> Drilling was conducted over the top of a known salt dome having hydrocarbon production around its rim. The drilling program encountered sulphur in all except one of the 20 holes drilled over the top of the dome that reached their target depth; one hole was lost prior to reaching the sulphur horizon. Each well bore was cored throughout the target geologic horizon, and was logged by wireline geophysical instruments. Key drilling results are summarized on a table in Exhibit 6 [not included herein].
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> The Main Pass sulphur deposit occurs in limestone caprock over the top of a salt dome structure. The salt dome appears to be fairly typical of the piercement-type salt domes that have been drilled onshore and offshore along the Gulf Coasts of the United States and Mexico. Sulphur-bearing salt domes along the coast of the Gulf of Mexico typically have a stratigraphic sequence as shown on a diagram in Exhibit 6, wherein a diapiric salt body has pushed through a thick sedimentary sequence, and the top of salt lies relatively near the surface. A sequence of anhydrite, shales, and other rock strata know as caprock may overlie the salt, and sometimes hosts sulphur deposits.
>
> The dome is roughly circular in shape, having a relatively flat top and a minimum depth of about 1,300 feet below sea level, with a diameter of about 10,000 feet at the 3,000 feet subsea contour. The salt diapir is believed to extend from approximately 1,800 feet subsea to at least a depth of 25,000 feet. Prior to drilling by the Joint Venture, all reported drilling on this dome had been located on or near the flanks in search of oil and gas.
>
> The Joint Venture's exploration program significantly improved knowledge of Main Pass 299 dome geology. Total caprock thickness, some unmineralized and some hosting sulphur, was shown to vary from 121 feet to 538 feet. Limestone thickness ranged from 81 feet to 480 feet. Barren or noncommercial sulphur-bearing limestone varied from 17 feet to 448 feet in thickness. The commercial sulphur horizon varied in thickness up to 230 feet. Anhydrite ranged from only 2 feet up to 132 feet thick.

The shallowest salt contact was at 1,764 feet subsea, while the deepest was at 1,928 feet subsea. Cross sections of the deposit, with a cross section index map, are included in Exhibit 6.

In general, the greatest caprock thickness and commercial sulphur horizon is in the southeast part of the dome. The sulphur horizon tends to pinch out abruptly in the southeast while a more gradual thinning occurs in the western and northern sections. Exhibit 6 includes a map of reserves distribution in the sulphur horizon. A thick zone of barren caprock exists in the extreme southeast quadrant of the dome.

Caprock occurs over an area of approximately 1,700 acres. The upper caprock in the central and southeast area and in a smaller area northwest of the center consists of an unconsolidated calcite which contains oil and gas. Portions of the hard limestone just below this softer calcite are also oil bearing. Total area within these zones is approximately 631 acres. A smaller area of about 134 acres in the southeast part of this calcite zone contains gas; gas appears to be primarily methane. Gas also occurs in thin, discontinuous sands overlying the caprock.

Some block movement or minor faulting was indicated by drill hole results; distortion and evidence of recompaction were also present in the cores of several wells where banding patterns showed distinct variation. Major faults were not indicated and no significant displacement was detected in the drilling results. The movement and distortion observed was limited to wells located on the outer portions of the caprock and was not evident in the central area; however, small displacement normal faulting may be expected over the dome, as this type of faulting is commonly associated with caprock.

Total proven recoverable sulphur contained in ore reserves at the Main Pass sulphur mine as of the date of this report is estimated at 65 MM LT.

Regulatory Discussion

MMS Jurisdiction over E&P Waste Disposal in Salt Caverns Underlying OCS Waters

The Outer Continental Shelf Lands Act (OCSLA)

The Outer Continental Shelf Lands Act (OCSLA), in 43 USC 1334 (a), provides:

> "The Secretary [of the Interior] may at any time prescribe and amend such rules and regulations as he determines to be necessary and proper in order to provide for the prevention of waste and conservation of the natural resources of the outer Continental Shelf, and the protection of

> correlative rights therein, and, notwithstanding any other provisions herein, such rules and regulations shall, as of their effective date, apply to all operations conducted under a lease issued or maintained under the provisions of this subchapter. In the enforcement of safety, environmental, and conservation laws and regulations, the Secretary shall cooperate with the relevant departments and agencies of the Federal Government and of the affected States."

30 CFR Part 250 Subpart C ("Pollution Prevention and Control")

Pursuant to the authority of OCSLA, the MMS issued 30 CFR Part 250 Subpart C ("Pollution Prevention and Control"), containing the implementing regulation 30 CFR 250.300 (b) (2), which provides:

> "Approval of the method of disposal of drill cuttings, sand, and other well solids shall be obtained from the District Supervisor."

Notice to Lessees (NTL) 99-G22 ("Guidelines for the Sub-Seabed Disposal and Offshore Storage of Solid Wastes")

Pursuant to OCSLA's broad grant of authority and the above regulation, the MMS issued Notice to Lessees (NTL) 99-G22 ("Guidelines for the Sub-Seabed Disposal and Offshore Storage of Solid Wastes") effective September 24, 1999. This NTL regulates the disposal, in the sub-seabed under a lease, of E&P wastes (as well as qualifying naturally occurring radioactive material [NORM] which is *not* the subject of this application).

The present application is unique in that the MMS has not previously been asked to approve disposal of E&P waste in salt caverns or caprock associated with salt domes. Applications for approval under NTL 99-G22 have proposed injection of waste into fractured geological formations. No fracturing of either caprock or salt caverns is proposed herein. Additionally, in previous applications the MMS has allowed the designated operator of a lease to dispose of, on that lease, E&P waste generated by E&P operations conducted on that lease or on another lease of which it is designated operator. The present application is the first application the MMS has received for disposal, by a designated operator of a lease, of E&P waste generated on leases of which it is not the designated operator (i.e., the application is for a commercial disposal operation to be conducted in OCS waters, disposing of the E&P waste in the sub-seabed of the OCS). Regardless of these unique features of the present application, there are sufficient regulatory guidelines in existence already to cover the most important aspects of the proposed project. Remaining elements of oversight can be made part of the approved permit.

The NTL provides instructions on preparing a Sundry Notice form seeking approval for disposal of E&P waste (and NORM, for which, again, approval is not sought herein) downhole. Because there are no MMS regulations containing provisions for the

authorization and operation (e.g., safety and worker health standards, air and water quality standards), of commercial E&P waste disposal facilities, Freeport proposes to use this same form to seek authority for downhole disposal of E&P waste from leases other than those covering Main Pass 299 (in addition to the Sulphur and Salt Lease OCS-G 9372, Oil and Gas Leases OCS-G 9316 and 12362 cover portions of Block 299). Assuming that the MMS would want to draft regulations to cover the operation of such facilities, Freeport volunteers to help the MMS in this effort while Freeport is operating what is, essentially, the pilot facility, pursuant to the NTL and other appropriate provisions of MMS, Coast Guard and EPA regulations.

Rights Granted Under the Sulphur and Salt Lease Covering Main Pass 299

Pursuant to Sections 2 and 5 of Freeport's Main Pass 299 Sulphur and Salt Lease (OCS-G 9372) effective May 1, 1988, Freeport is granted the "exclusive right and privilege to drill for, develop and produce sulphur and salt resources" thereon, subject to which "Lessee [Freeport] shall pay a fixed royalty of 5% at the mine for any salt produced and used or otherwise disposed of off the leased area for purposes other than sulphur production." Accordingly, Freeport has the right to create salt caverns on its lease and, pursuant to the NTL and other appropriate provisions of MMS, Coast Guard and EPA regulations, proposes to dispose of, in the salt caverns and caprock overlying them, E&P waste.

Other Agencies

(a) **EPA:** The EPA has authority over injection wells under the Safe Drinking Water Act (SDWA) Underground Injection Control (UIC) program provisions, pursuant to which it delegates this authority to the states. However, EPA's regulations at 40 CFR 144.1 (g) (2) (i) expressly exclude "Injection wells located on a drilling platform or other site that is beyond the State's territorial waters." Also, EPA has authority over ocean dumping (33 USC 1401 et seq.). However, ocean dumping rules pertain to dumping into the waters of the ocean, not disposal of wastes into the sub-seabed of the OCS. Freeport will, however, be subject to the provisions of the EPA's National Pollutant Discharge Elimination System (NPDES) regulations, and, accordingly, will notify the EPA of the additional operations being conducted pursuant to its special permit previously obtained for Sulphur and Salt Lease operations.

(b) **State agencies:** State agencies have jurisdiction over E&P waste disposal onshore and in the sub-seabed of state waters; however, jurisdiction of state agencies does not extend into OCS waters. Nonetheless the adjacent state to the proposed operations (Louisiana) is, as of the date of this application, considering the 4th Revision of proposed regulations to govern "Disposal of Oil and Gas Exploration and Production Waste in Solution-Mined Salt Caverns" (Louisiana Administrative Code Title 43, Part XVII, Subpart 5 [Statewide Order No. 29-M-2]). It is proposed in this application to use the appropriate provisions of these proposed rules as a guide for creating standards to apply to this proposal (accordingly, these proposed rules will be referenced herein). Again, while coastal state agencies' jurisdictions do not extend into the OCS, these

states will derive an environmental benefit due to reduced volumes of OCS-generated E&P waste being disposed of onshore (this will be addressed in detail in the Environmental Report).

National Environmental Policy Act (NEPA):

NEPA requires every federal agency to consider and weigh with other policy concerns the environmental impacts of the actions and legislation the agency proposes. NEPA requires the preparation of a detailed Environmental Impact Statement (EIS) on any major federal action that may have a significant effect on the environment. The EIS must include any adverse environmental effects that can be avoided or mitigated, alternatives to the proposed action, the relationship between short-term uses and long-term productivity of the environment, and any irreversible and irretrievable commitments of resources.

MMS prepares an EIS prior to each lease sale describing the environmental impacts of E&P activities. An Information Request is issued pursuant to the EIS, specifically requesting input on the scheduled sale under consideration. An Environmental Assessment (EA) is prepared to determine whether the information and analyses in an original multi-sale EIS are still valid for each subsequent sale under consideration and for those other proposed actions which the MMS deems to possibly exceed the scope of the EIS. Consideration of the EA and any comments received in response to the Information Request will result in either a Finding of No Significant Impact (FONSI) or the determination that the preparation of a Supplemental EIS (SEIS) is warranted (40 CFR 1502.9).

Because the EA is prepared for a proposal that "is, or is closely similar to, one which normally requires the preparation of an EIS" (40 CFR 1501.4 (e) (2)), each FONSI is made available for public review for 30 days prior to making a decision. The EA/FONSI is then sent to the Governors of the affected states and its availability announced in the Federal Register. The FONSI then becomes part of the Record of Decision.

Thus, in addition to the numerous EISs the MMS has prepared since Lease OCS-G 9372 was issued, the MMS has conducted the following EAs which are relevant to this application:

(1) An EA regarding the "Issuance of Notice to Lessees and Operators of Federal Oil and Gas Leases on the Outer Continental Shelf Gulf of Mexico Region: 'Guidelines for the Offshore Storage and Sub-Seabed Disposal of Wastes Resulting from the Development and Production of Oil and Gas on the Outer Continental Shelf'", a FONSI for which was signed May 8, 1996;

(2) An EA for proposed sulphur mining operations on Lease OCS-G 9372 covering Main Pass Block 299, the FONSI for which was issued in 1990; and

(3) A “Site-Specific Environmental Assessment (SEA)” for the Supplemental DOCD proposing salt production pursuant to Sulphur and Salt Lease OCS-G 9372. The FONSI for this EA was signed March 9, 2001.

Additionally, the EPA, as stated in the Federal Register notice for the proposed NPDES General Permit for New and Existing Sources and New Dischargers in the Offshore Subcategory of the Oil and Gas Extraction Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (GM290000) (see 63 FR 2238, January 14, 1998) determined that reissuance of that NPDES general permit would not result in any new impacts which were not subjected to NEPA analysis in either the MMS’s EIS or the Supplemental EIS produced by EPA Region 6. To reach this determination EPA examined the effects of discharge of E&P wastes into the waters of the OCS Gulf of Mexico.

Net Environmental Impact

While this is covered in more detail in the attached Environmental Report, it is Freeport’s position that a commercial E&P waste disposal facility to be located at Main Pass 299 would actually result in net environmental benefits by reducing: (1) Pollution into the waters of the U.S. (2) Potential for onshore air and groundwater pollution attributable to onshore disposal facilities, and (3) Potential for damage from a spill by reducing transportation distances as well as moving far from areas of population the disposal location.

Pursuant to OCSLA, MMS encourages any activity that promotes utilization of mineral reserves in an environmentally safe manner. Freeport’s proposed project does so. Improved waste management practices, by reducing ocean discharges and consolidating waste disposal into a facility designed and operated strictly for that purpose, will ensure a reduction of environmental impact from OCS operations.

SECTION B – NTL 99-G22 REQUIREMENTS ADDRESSED

NTL Response for injection into Well # BR-05-A salt cavern (via existing Well # BR-05-A, to be renamed CA-05-A)

GUIDELINES

I. Types of Wastes

A. All solid wastes (including slurries) covered by this NTL must:

1. Be generated from OCS oil, natural gas, or sulphur development and production activities; and

2. Be exempt E&P wastes under the RCRA.

B. The solid wastes covered by this NTL include:

1. Drilling fluids, produced waters, and other E&P wastes;

2. Miscellaneous trash and debris associated with waste handling operations (e.g., gloves, tyvek suits); and

3. Any wastes containing NORM above background levels.

This application is for the injection of the following RCRA exempt E&P wastes (E&P waste is defined by EPA in 53 FR 25447 [especially page 25453], July 6, 1988 and clarified in 58 FR 15284, March 22, 1993) generated from OCS oil, natural gas, and sulphur and salt exploration and production activities:

Produced water; drilling fluids; drill cuttings; rigwash; workover wastes; cooling tower blowdown; packer fluids; produced sands; backwash; pigging wastes from gathering lines; well completion, treatment, and stimulation fluids; basic sediment and water and other tank bottoms from storage facilities that hold product and exempt wastes; accumulated materials such as hydrocarbons, solids, sand, and emulsion from production separators, fluid treating vessels, and production equipment; dehydration wastes, including glycol-based compounds, and molecular sieves; sweetening wastes for sulfur removal, including amine; precipitated amine sludge, iron sponge, and hydrogen sulfide scrubber liquid and sludge; pipe scale, hydrocarbon solids, hydrates, and other deposits removed from piping and equipment prior to transportation; wastes

from subsurface gas storage and retrieval, except for the listed nonexempt wastes; constituents removed from produced steam, such as hydrogen sulfide and carbon dioxide, and volatilized hydrocarbons; materials ejected from a producing well during the process known as blowdown; waste crude oil from primary field operations and production; light organics volatilized from exempt wastes in production equipment, water based drilling fluid and the associated cuttings, non-reclaimable, non-hazardous tank bottoms; non-injectable, non-hazardous waste material from produced water collection; produced formation sand; solid wastes from dehydration and sweetening, such as spent glycol and amine filters; solid filter media, molecular sieves, and precipitated amine sludge, iron sponge, and hydrogen sulfide scrubber; iron sulfide; spent activated carbon and other filtering and separation media; non-reclaimable oil based or synthetic drilling fluid; cuttings generated while using oil or synthetic based drilling fluid; non-hazardous, oily waste containing no reclaimable oil; hydrostatic test water from crude oil/natural gas pipelines; washwater generated from washout of vessels that contained only non-hazardous oil and gas waste, waste transportation vessel washout liquids and "miscellaneous trash and debris associated with E&P waste handling operations (e.g., gloves, tyvek suits)" as is allowed by the above provision of this NTL.

NORM wastes will not be accepted. Since the background level of radiation varies from location to location, MMS has a policy of relying on the generator's knowledge to determine if it produced NORM waste. Generator knowledge and certification (as evidenced by a completed form similar to Louisiana's UIC-28 Form [a copy of which is attached] as approved by the MMS) will be relied upon for waste acceptance. As an added measure, only wastes with less than 50 microrems/hr inclusive of background will be accepted.

II. Disposal Criteria

A. <u>Encapsulation Criteria</u>

Does not apply as no waste will be encapsulated.

B. <u>Injection Criteria</u>

1. **The disposal reservoir must be depleted of commercial hydrocarbons.**

The disposal cavern (reservoir) is the cavern that was formed from salt mining. The salt dome is the formation and contains no hydrocarbons.

2. **The disposal reservoir/formation must be isolated by shale barriers above and below and not contain any producing wells.**
   The waste will be completely surrounded by impervious salt, which will provide a sufficient barrier to waste migration. The cavity has been pressure tested to levels acceptable in industry for oil storage operations. The salt cavern contains no hydrocarbon producing wells.

3. **The disposal reservoir/formation must be below the deepest underground source of drinking water.**
   There are no underground sources of drinking water above or below the salt cavity.

4. **The wellbore, tubular goods, and control devices must demonstrate mechanical integrity (no tubing/casing communication).**
   There is no packer between the tubing and the annulus of this injection well by design due to the need to: remove brine water while injecting waste; and to monitor blanket (cavern) pressure. The annulus between the last cemented casing (long string) and the outer tubing acts as blanket control and gives the operator the cavern pressure via wellhead measurement. The annulus between the outer and inner tubing is the brine return when injecting. The integrity of the casing and the cavern would be confirmed by mechanical integrity tests before using as a disposal well.

5. **You must continually monitor surface tubing and the tubing/casing annulus pressure with a two-pen chart recorder during injection.**

   Injection and return flow pressures will be monitored during injection. (See above).

6. **You must run a base-line radioactive tracer log prior to injection and a follow-up log after injection to verify proper placement of the slurry.**

   The injection occurs at the end of the tubing into the cavern, not through perforations. Radioactive tracers are used to

show where the waste material leaves the tubing through the perforations. In this application, the E&P waste will leave the tubing at the end of the tubing and fall to the bottom of the cavern. Additionally, continuous injection of radioactive tracers is impractical and potentially detrimental due to long term buildup of these products during the life of this project. Accordingly, approval is requested for departure from the requirement of the running of a radioactive tracer log.

7. **If the well is to be used for future injections, you must:**

   a. **Set a retrievable plug;**

   b. **Mark the well, clearly indicating it is being used for the injection of wastes and whether the wastes contain NORM; and**

   c. **Monitor the tubing and casing pressures daily on manned structures and weekly on unmanned structures and check the mechanical integrity (pressure sealing properties) at least annually.**
   If waste disposal is suspended for more than 180 days, this procedure will be followed.

All waste injection wells will be marked for their intended use.

III. Worker Safety Guidelines

A. Develop and follow procedures to protect workers involved in disposal operations.
Operations will be conducted in accordance with the worker safety guidelines outlined in the Safety Plan (Exhibit 9).

B. Ensure that any employer of persons engaged in activities involving wastes containing NORM above background levels (including transportation, storage, sampling, mixing, and disposal operations) complies with the provisions of 29 CFR 1910.96 (or its successor).
NORM wastes will not be accepted.

C. Ensure that all onsite contractors directly involved with the handling or disposal of NORM wastes have been trained in the handling of NORM and are licensed under a State program.
NORM wastes will not be accepted.

IV. Application Information Guidelines

A. <u>Disposal Application Information</u>. When you propose to dispose of wastes, include the following information in your application:

1. A description of the material to be disposed of including:

a. Whether the waste is to be formed into a slurry and a description of the medium to be used to form the slurry (e.g., barite/bentonite, saltwater with HEC viscosifier, cement).

The E&P wastes to be disposed are described in Section I. These wastes will either be injected directly, slurried with salt water, viscosifier (gel), saturated brine water, liquids (saturated brine) removed from the cavern as waste is pumped into the cavern as well as tank cleaning fluids, and/or other liquid E&P waste. The E&P waste may be sent through a high-speed impeller (or other grinder) to grind the material to a finer particle size.

b. The number of containers to be disposed of, a description of the contents of each container (e.g., a half-filled container of oily produced sand), and a description of the container itself (e.g., a 55-gallon drum, a barrel, PVC pipe).

No containers or waste in containers will be disposed.

c. A description of any miscellaneous RCRA-exempt material that you intend to dispose of.

See Section I for a complete description of the E&P wastes.

d. The area(s) and block number(s) where the material originated.

The E&P waste will originate at various rigs and platforms operating in the OCS waters of the Gulf of Mexico. A listing of the generators (designated operators of OCS leases) with the areas and block numbers will be maintained.

e. If the waste contains NORM above background levels:

(1) The location(s), if any, where the material had been stored; and

(2) The radiation exposure rate for each container and for background conditions in microrems/hr.

NORM wastes will not be accepted. Since the background level of radiation varies from location to location, MMS has a policy of relying on the generator knowledge to determine if they produce NORM waste. . Generator knowledge and certification (as evidenced by a completed form similar to Louisiana's UIC-28 Form [a copy of which is attached] as approved by the MMS) will be relied upon for waste acceptance. As an added measure, only wastes with less than 50 microrems/hr inclusive of background will be accepted (this will be correlated in pCu).

f. A description or listing of any unusual contaminants, or of any contaminants that are present in unusually high levels in the wastes to be disposed of.

"Unusual contaminants" and "contaminants that are present in unusually high levels in the waste to be disposed of" are MMS terms not defined in this NTL or in MMS regulations, but it is conceivable that such wastes would consist of wastes that would be detected pursuant to Section 3.2 of the Operations Plan. Such wastes would be refused, and such refusal would be documented on the UIC-26 Waste Refusal Notification Form or such other similar form as is provided by the MMS. No such contaminants or unusually high levels of such contaminants are anticipated in the waste to be accepted. If any unusual contaminants or unusually high levels of contaminants are detected in a waste stream, that waste will not be accepted for disposal. The generators of the wastes to be accepted will be responsible for characterizing their waste and certifying that it is RCRA exempt E&P waste.

g. Any documentation submitted to a State agency prior to the disposal event.

When contracting with a generator, they will be asked if any documentation has been submitted to a State agency. If any such information exists, it will be forwarded to the MMS prior to disposal of that waste.

2. The OCS lease number, area, block, and well number of the disposal well.

The well proposed herein as a disposal well is the OCS-G 9372, Main Pass 299, Well No. CA-05-A (the proposed new name for the already existing OCS-G 9372, Main Pass 299, Well No. BR-05-A; disposal is proposed into the salt cavern formed by said Well CA-05-A).

3. The distance in feet from the two nearest lease lines, and the latitude and longitude of the disposal well.

The well's surface location is the OCS-G 9372 BS-2 Platform, 8025 feet from the North Line and 6975 feet from the East Line of Main Pass Block 299. The well's X and Y coordinates are X: 2,818,015; Y: 225,805.

4. The disposal technique (i.e., encapsulation, injection) you will use.

The E&P waste will be injected into a salt cavern.

5. A description of the procedures for encapsulation or injection (fracture procedure, plugs to be set, etc.).

The E&P waste material would be pumped from unloading/processing facilities into the salt cavern. Salt brine will be displaced out of the tubing/casing annulus to the surface. This process will continue until waste reaches the level of the injection tubing as verified by sonar survey at which time the injection tubing will be raised to a higher elevation. Once the sonar survey indicates that the cavern is full, the waste material will be allowed to settle. Then injection will be attempted again. This procedure will be repeated until it is determined that no more waste can be injected. Then the cavern access well will be plugged and abandoned.

6. Schematic drawings showing the wellbore prior to and after encapsulation or injection.

See Exhibit 4 (Schematic Drawings of Wellbore).

7. An assurance that you will adhere to the worker safety guidelines outlined in Section III of this NTL.

The worker safety guidelines outlined in Section III of this NTL will be adhered to. The Safety Plan is attached as Exhibit 9.

8. If any or all of the waste is to be <u>encased</u> in tubulars/casing:

a. **The size, grade, and weight per foot of the tubulars/casing.**

b. **The sub-surface depth of both the top and bottom of the tubulars/casing.**

c. **Whether the tubulars/casing will be free in the hole or will be secured by cement, a bridge plug, or a cement retainer.**

Encapsulation/encasement in tubulars or casing is not a requested method of disposal.

9. **If any or all of the waste is to be <u>injected</u>:**

a. **A description of any dilution procedures you will use prior to injection.**
The solid portions of the E&P wastes may be ground to a fine size, then mixed with saturated salt water, saturated brine, return liquids displaced from waste disposal in caverns or other liquids to form a slurry prior to disposal.

b. **A structure map of the formation that is to receive the injected slurry.**
See Exhibit 3 (Structure Maps).

c. **A 5-inch open hole log showing the injection zone and the shale above and below this zone. The log should contain spontaneous potential or gamma ray and resistivity curves.**
See Exhibit 8 (Typical Area Open Hole Logs), however, in that this is a well drilled into a pre-existing salt cavern, open hole logs taken during the drilling of the well into the cavern are not applicable because of the increased diameter of the hole (cavern). The confining structure below the injection cavern is thousands of feet of salt.

d. **The maximum anticipated surface and reservoir injection pressures.**
The maximum cavern (reservoir) injection pressure will be limited to the equivalent of the cavern integrity test pressure gradient of .65 psi per foot. The maximum anticipated injection pressure allowed will be the surface expression of that same pressure gradient as adjusted for the specific gravity of the fluid being pumped.

e. A model simulation of the fracture that will be produced during the injection procedure (i.e., length, height, and width of fracture).

No fracturing will be necessary for this disposal operation.

f. The predicted maximum distance from the wellbore to where the injected slurry will be placed.

Solids will be placed within the present average 126-foot diameter limits of the cavern. as determined by sonar surveying of the existing cavern. This cavern is anticipated to continue to be used for brine production and to continue to grow.

g. The distance from the nearest fault to the injection zone.

While faults exist near the cavern none were intersected during the initial drilling and none have been subsequently mapped through drilling activities.

B. NORM Storage Application Information. When you propose to temporarily store wastes containing NORM above background levels at an offshore location, include the following information in your application:

NORM wastes will not be accepted. Since the background level of radiation varies from location to location, MMS has a policy of relying on the generator knowledge to determine if they produce NORM waste. Generator knowledge and certification will be relied upon for waste acceptance. As an added measure, only wastes with less than 50 microrems/hr inclusive of background will be accepted.